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By Michael Barker

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Seeds of a bright organic future

Interview: The EU's Liveseed project is a major initiative aimed at improving the organic seed sector for the benefit of all producers



The EU Liveseed team

The EU Liveseed project aims to improve the transparency and competitiveness of the organic seed and breeding sector, encouraging greater use of organic seed for fruit and vegetable production.

Fruitnet's contributing editor Michael Barker caught up with project co-ordinator Agnes Bruszik to hear about the initiative's objectives and how it will benefit the organic market across Europe.

Why was it necessary to create this project? Is there currently an inequality in the breeding of conventional vs organic seeds?

Liveseed was created to boost organic seed and plant breeding in Europe from all perspectives: political, technical, agronomic and socio-economic across Europe. Some 50 organisations from 18 European countries are directly engaged in Liveseed, as well as 147 stakeholders from different sectors, to achieve a high impact.

Seeds are the foundation of farming. Therefore, organic production should start with organic seed. Applying organic seed is mandatory according to European organic regulations, but untreated conventional seed is still used to a varying extent in different countries. According to the new Organic Regulation 2018/848 that is planned to enter into force in 2021, farmers will not be allowed to use untreated conventional seeds instead of organic ones by 1 January 2036.

Currently, there is a great unbalance between countries, as very little organic seed is available in southern and eastern member states and more is available in north-western Europe. Liveseed has the ambition to foster organic seed production and use across Europe and create level playing fields for the actors.

First, we need to understand what exactly is the state of organic seed use and production in the EU, how the EU regulations with respect to organic seed are implemented in the different

countries, then look at how its production and use can be stimulated through political and fiscal measures, as well as through novel approaches in organic breeding and increasing health and quality of seeds.

Furthermore, the current system - from breeding, and seed production to variety registration - in many respects favours the conventional system. Yet, there are substantial differences in organic and conventional breeding and seed production and smaller-scale breeding initiatives face various political and institutional constraints. For example, due to smaller markets, separate logistic lines, and higher production risk under pesticide-free production, organic seed is more expensive for certain crops than conventionally multiplied seed.

Presently only a few seed companies produce organic seed. Moreover, cultivars developed specifically for organic growing conditions face difficulties in obtaining official variety registration, which is mandatory for the

marketing of seeds. In many cases seeds are not homogeneous enough or they do not pass the threshold for yield when tested under conventional conditions only. As a result, there are only a few organic cultivars in the market and farmers are forced to use cultivars from conventional breeding programmes. These cultivars might lack important traits that are required for the low-input conditions of an organic system.

For instance, organic farmers need robust cultivars that are resistant to soil- and seed-borne pests and diseases, possess good weed competition and high nutrient-use efficiency. In addition, farmers need cultivars with higher genetic diversity which can adjust to unexpected stresses and weather events due to climate change. Organic agriculture cannot achieve its full potential without organic seeds of cultivars adapted to organic growing conditions. That is why Liveseed was created.

Briefly, what does the project hope to achieve?

In broad terms, Liveseed aims to increase the sustainability, competitiveness and transparency of the organic seed and breeding sector. That means that farmers should have access to organic seeds from a wider assortment of cultivars that are suitable for their specific needs. The 50 multi-actor partners from 18 EU countries work jointly on a harmonised implementation of the EU organic regulation, developing guidelines for organic cultivar testing and registration, improving seed availability and health, investigating socio-economic aspects, developing innovative breeding approaches, and establishing organic breeding networks in Europe. Important for Liveseed is also the fair knowledge transfer and a free dissemination of our project results. Liveseed is a very applied project with strong links and interactions with very different players in Europe and the US. The main target groups are farmers and breeders, and eventually the whole organic value chain including consumers, but also seed companies, national and European authorities and certification bodies.

The organic market in Europe continues to grow. In 2018, it increased by almost 8 per cent and reached €40.7 billion. We expect this trend to continue. The number of producers, processors and retailers also show steady growth. The sector needs a multi-actor approach, and the involvement of all stakeholders to work together to maintain the quality, transparency, and credibility of organic product from farm to table.

The Liveseed project has already contributed in many ways to strengthening organic seed production and the breeding sector across the EU. Recommendations at national level workshops were taken up by national authorities from including compulsory training for seed multipliers on organic seed production to a set-up of national level organic seed expert groups. EU-level recommendations from Liveseed on, for instance, the characterisation of organic heterogeneous materials for the new Organic Regulation were taken into account.

An overview of the state of organic seed in the EU was carried out for the first time and serves as a reference for EU and national policymakers. Innovations from Liveseed include, as examples, improved breeding materials, technical toolboxes and incentives for farmers to use and produce organic seeds, a European router database making it easier for organic seed suppliers to market organic seed abroad, adjusted protocols for organic cultivar registration and VCU testing and business models for scaling up organic seed and plant breeding. Based on the experimental trials we will be able to develop recommended cultivar lists for selected crops on a local level.

Activities dedicated to organic breeding will result in new organic cultivars for notification as Organic Heterogeneous Material or for the upcoming temporary experiment on the release of organic varieties which is foreseen to start on 1 July in the scope of the new organic regulation. This comprehensive approach hopes to deliver the boost necessary for the sector.

and seed systems to contribute to more biodiversity in food and farming. Participatory approaches deserve a special mention: including the farmer in the breeding process, for instance in the selection process or by hosting on-farm trials, ensures that the right cultivars are being developed. Furthermore, participatory approaches require the full commitment of the whole value chain, including the consumer, to ensure sustainability and financial independency. In Liveseed, we also give emphasis to developing new breeding tools based on better scientific understanding of the biological basis of crop resilience and product quality, plant-plant, and plant-microbe interactions.

The project will develop screening tools for tolerance against stresses (e.g. in pea), complex soil-borne diseases in pea, smut resistance in wheat, anthracnose in lupines. Improved breeding populations selected for and under organic farming conditions for exchange and further breeding will be in cereal mixtures and grass-legume mixtures; cell fusion-free broccoli, cauliflower and kohlrabi, locally adapted and tasty tomato as well as pretested candidate apple cultivars for organic farming.

Will the findings of the project benefit seed breeders of all sizes?

This is a very important aspect for us. Liveseed partners consist of two public, seven small organic and two larger seed companies (Vitalis and Freudenberger Feldsaaten) with special focus on organic seed production. In addition, we specifically want to encourage small and innovative approaches and the development of local organic seed business by farmers or farmer organisations. We design low-budget models that can be implemented in less-affluent countries. For instance, we are organising cross-visits in which stakeholders from countries where the organic sector is less developed are invited to learn from their experience. We visit organic seed production sites in France, Italy, the Netherlands and Germany in which participants learn about various smart practices and become change

What sort of growth do you expect to see from the organic fruit and vegetable sector in particular? Will the project create the conditions that will allow more innovation and new organic varieties to come to market?

Can you give any examples of some of the new breeding approaches that could benefit the organic sector?

agents in their countries.

We want to empower a diversity of breeding approaches